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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,126	01/16/2004	Bruce R. Ferguson	MSEMI.110A	7205

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EXAMINER	
PIGGUSH, AARON C	

ART UNIT	PAPER NUMBER
2838	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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TH

Office Action Summary	Application No.	Applicant(s)	
	10/760,126	FERGUSON, BRUCE R.	
	Examiner	Art Unit	
	Aaron Piggush	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-14 and 16-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-14 and 16-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 9-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23-25 and 27-29 of copending Application No. 10/758952. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 23 and 24 of application 10/758952 disclose all of the limitations of claims 9 and 10 of the instant application, wherein the "transistor" of the instant application is met by the "bi-directional transistor" of application 10/758952 because a bi-directional transistor is still a transistor. Additionally, claims 25, 27, 28, and 29 of application 10/758,952 claim all of the limitations of claims 11, 12, 13, and 14, of the instant application, respectively.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 9-14, 16, 18-22, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) in view of Krall (US 5,621,299).

With respect to claims 9, 10, and 16, Oglesbee discloses a method for controlling battery power comprising the acts of: selectively providing a first external power source to a device coupled to a system power terminal (abstract, no. 400 in Fig. 5, and col 3 ln 1-15); coupling an internal battery to the system power terminal via series-connected transistor (battery no. 201 in Fig. 2, transistor no. 203 in Fig. 2, and abstract); charging the internal battery by linearly regulating the transistor with an adjustable voltage at a control terminal of the transistor to conduct a charging current in a first direction from the system power terminal to a positive battery terminal during a charging mode (no. 205 in Fig. 2 and col 4 ln 35-49), wherein the level of the current provided to the internal battery is controlled by the level of the adjustable voltage to prevent a current from exceeding a predefined threshold (col 4 ln 3-49); and discharging the internal battery by regulating the transistor to conduct a discharging current in a second direction from the positive battery terminal to the system power terminal during a discharging mode (no. 204 in Fig. 2 and col 4 ln 3-34).

However, Oglesbee does not expressly disclose selectively providing a first or a second external power source to a device (i.e. wherein this is interpreted to mean that there are two

separate external power sources which can be switched between). As noted above, Oglesbee does disclose adjusting both the charging current and the discharging current, but his threshold control appears to be focused on the discharging current (it is obvious that this threshold control could also be applied to the charge control in the same manner).

Krall discloses selectively providing a first or a second external power source to a device (no. 27 and 29 in Fig. 1, including switches no. 14 and 16) and adjusting the charging current to prevent a supply current from exceeding a predefined threshold (no. 47 in Fig. 1, all components of Fig. 5, and col 6 ln 33-67), in order to prevent damage to the wiring or the batteries resulting from too great of a current or the heat generated therefrom.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a selectable first or second external power source and adjust the charging current to keep it from exceeding a predefined threshold in the device of Oglesbee, as did the device of Krall, so that the batteries and wiring would not be damaged from too great of a current.

With respect to claim 11, Oglesbee discloses wherein the impedance of the transistor varies to limit the level of the charging current (col 3 ln 36-46 and col 4 ln 3-49). Furthermore, when the transistor is off, its impedance is so high that current cannot flow through, and when the gate is supplied with certain voltages, the impedance is lowered so that a current may flow.

With respect to claim 12, Oglesbee discloses wherein the charging mode occurs when the voltage on the system power terminal is greater than the voltage of the internal battery (col 4 ln 35-49 and abstract). This is further understood because when the external power of the system is functioning correctly and supplying power to the device, it is used to charge the battery.

Additionally, when there are two DC voltage sources (e.g. the battery and the external power source), current flows from the source of the higher potential to the source of the lower potential, as is well-known to one of ordinary skill in the art.

With respect to claim 13, Oglesbee discloses wherein the discharging mode occurs when the voltage on the system power terminal is less than the voltage of the internal battery (col 4 ln 3-34 and abstract). This is further understood because when the external power of the system is functioning incorrectly or is turned off and not supplying power to the device, the battery will be used to supply power. Additionally, current flows from the source of the higher potential to the source of the lower potential, as is well-known to one of ordinary skill in the art.

With respect to claim 14, Oglesbee discloses wherein the discharging mode occurs in response to a discharge command (no. 204 in Fig. 2, wherein 234 is a typographical error in the reference which should be labeled 204 according to the specification, and col 6 ln 43-63).

With respect to claim 18, Oglesbee discloses sensing current supplied by the external power source and generating an associated current sense signal (col 4 ln 3-49 and col 6 ln 43-63); charging the internal battery by regulating the transistor to conduct a charging current in a first direction from the system power terminal to a positive battery terminal during a charging mode (no. 205 in Fig. 2 and col 4 ln 35-49), wherein the current is linearly adjusted (overriding a driving signal) to limit the supply current and prevent it from exceeding a predefined threshold (col 4 ln 3-49); and discharging the internal battery by regulating the transistor to conduct a discharging current in a second direction from the positive battery terminal to the system power terminal during a discharging mode (no. 204 in Fig. 2 and col 4 ln 3-34).

However, he does not disclose sensing a supply current from the second external power source (i.e. wherein this is interpreted to mean that there are two external power sources which can be switched between, as noted in claim 16). As noted above, Oglesbee does disclose adjusting both the charging current and discharging current, but his threshold control appears to be focused on the discharging current (it is obvious that this threshold control could also be applied to the charge control in the same manner).

Krall discloses selectively providing a first or a second external power source to a device (no. 27 and 29 in Fig. 1, including switches no. 14 and 16), sensing a supply current from the second external power source (no. 47 in Fig. 1, all components of Fig. 5, and col 6 ln 33-67), and adjusting the charging current (overriding the driving signal) to reduce the transistor's current level when the current sense signal exceeds the threshold value (no. 47 in Fig. 1, all components of Fig. 5, and col 6 ln 33-67), in order to prevent damage to the wiring or the batteries resulting from too great of a current or the heat generated therefrom.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to sense a supply current from the power source and adjust the charging current level when the current sense signal exceeds the threshold value in the device of Oglesbee, as did the device of Krall, so that the batteries and wiring would not be damaged from too great of a current.

With respect to claims 19, 20, and 22 Oglesbee discloses wherein the transistor is a MOSFET (or field effect transistor) with a configurable body contact and with a source terminal coupled to the system power terminal and a drain terminal couple to the internal battery, wherein the configurable body contact is coupled to the system power terminal during a charging mode

and to the internal battery during a discharging mode (no. 203 in Fig. 2, abstract, col 1 ln 10-14, and col 3ln 8-15). Furthermore, it would have been beneficial to use a P-channel MOSFET due to circuit simplification in medium and low power applications (versus an N-channel MOSFET). It would also be beneficial to configure/connect it as the enhancement mode MOSFET because it would be less subject to random static charges (i.e. greater protection). Please also note couple is defined as joining together, and by that definition, the claim language is still reasonably met by Oglesbee.

With respect to claim 21, Oglesbee does not expressly disclose automatically disconnecting an external secondary power source when the external primary power source is connected.

Krall discloses automatically disconnecting an external secondary power source when the external primary power source is connected (col 3 ln 59-67 and no. 14 and 16 in Fig. 1), in order to avoid any external or internal circuit complications (i.e. damage to the power source or the device itself) from having two different power sources connected at the same time.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to disconnect the secondary power source when the primary source was connected in the device of Oglesbee, as did Krall, so that damage to the power source or the device itself could be avoided (from having two different power sources connected at the same time).

With respect to claim 25, Oglesbee discloses sensing a voltage difference between the system power terminal and the positive battery terminal to generate a feedback control signal usable for varying the level of the adjustable voltage at the control terminal of the transistor (col 2 ln 58-67, col 3 ln 37-46, and col 6 ln 43-63).

With respect to claim 26, Oglesbee discloses wherein the transistor fully disconnects the internal battery from the system power terminal during a disable mode (col 3 ln 36-46 and col 4 ln 21-49).

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) and Krall (US 5,621,299), as applied to claim 16 above, and further in view of Henrie (US 6,170,062).

With respect to claim 17, Oglesbee does not expressly disclose wherein the external primary power source is an AC adapter or wherein another external power source is a USB power interface.

Krall discloses wherein the external primary power source is an AC adapter (no. 63 in Fig. 1 and col 4 ln 59-65), in order to provide additional sources of power for the system which are readily accessible at numerous locations where the device might be used.

Henrie discloses a dual power supply on a USB system wherein a secondary external power source is a USB power interface (abstract, Fig. 9b, and col 2 ln 48-67), in order to provide a dual means of communication and power supply for various computer components.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an AC adapter in the device of Oglesbee, as did Krall, and a USB power interface as the secondary external power source in the device of Oglesbee, as did Henrie, so that greater compatibility would be provided with various power sources available at different locations in which the device may be used, along with providing a port that could also be used to communicate with another device.

6. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oglesbee (US 6,246,214) and Krall (US 5,621,299), as applied to claims 16 and 20 above, and further in view of Fugate (US 2002/0021164).

With respect to claims 23 and 24, Oglesbee does not expressly disclose wherein the method further comprises a comparator with input coupled across the transistor to sense a voltage polarity of the transistor and an output to control connections for the configurable body contact, or wherein the configurable body contact connects to a channel terminal with a relatively higher voltage during a shutdown mode.

Although, Oglesbee does have a comparator with inputs technically coupled across the transistor (see no. 310 in Fig. 4).

Fugate discloses a transistor with a configurable body contact (no. 22 in Fig. 2) and a comparator with inputs coupled across the transistor (see Fig. 2 at Vdd and Vo), wherein the output controls connections for the configurable body contact (no. 32 in Fig. 2), wherein the configurable body contact connects to a channel terminal with a relatively higher voltage during a shutdown mode (para 0002, 0003, 0007, 0008, and 0009), in order to provide a safer power down with slow and fast falling power supplies.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a transistor with a body configurable contact and a comparator coupled across the inputs of the transistor to control the connection as mentioned above in the device of Oglesbee, as did Fugate, so that a safer connection could be provided depending on whether or not the battery was being charged or discharged.

Response to Arguments

7. Applicant's arguments with respect to claims 9 and 16 have been considered but are moot in view of the new ground(s) of rejection. Please see the rejections above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Piggush whose telephone number is 571-272-5978. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AP

KARL EASTHOM
SUPERVISORY PATENT EXAMINER